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July 5, 2002

Paul Kolodzy, Ph.D.
Spectrum Policy Task Force
Federal Communications Commission
445 12th Street SW
TW-A325
Washington, DC 20554

Re: ET Docket No. 02-135

Dear Dr. Kolodzy：

This letter responds to the FCC request for public comment related to the commission's spectrum policies regarding efficient use of the spectrum, ET Docket No. 02-135. The comments below address the following key issue: ***Efficient use of the bands allocated for scientific research requires that they be maintained free of interference.***

The SETI Institute is a private, nonprofit organization dedicated to scientific research, education and public outreach. Founded in 1984, the Institute today employs over 100 scientists, educators and support staff. Research at the Institute is anchored by two centers, each directed by a renowned scientist who holds an endowed chair. Dr. Jill Tarter leads the Center for SETI (Search for Extraterrestrial Intelligence) research as Bernard M. Oliver Chair for SETI, while Dr. Christopher Chyba holds the Carl Sagan Chair, and directs the Center for the Study of Life in the Universe. Since it was founded, the Institute has been awarded more than 100 multi-year projects from both government agencies and private foundations.

SETI is a specialized branch of radio astronomy operating primarily, but not exclusively in the 1 to 20 GHz portion of the spectrum. We depend upon the interference protection provided to the Radio Astronomy and Passive Earth Remote Sensing allocations in this part of the spectrum. While it may seem reasonable to take a purely economic approach to spectrum policies, it is very important to employ a broad definition of the term "economic", one that recognizes the value of new information about the universe and our place therein that can be gleaned from radio astronomy. Public fascination with the question of whether other intelligent species occupy our universe is an important "hook" for science education, and thus provides a significant long-term benefit for our society.

I suggest that it is in the best interest of the public to continue to preserve allocated portions of the radio spectrum for exclusive use of passive scientific research. In geographic areas around radio observatories, it is desirable to limit the number and

strength of transmitters. In frequency bands adjacent to the Radio Astronomy and Passive Remote Sensing bands, unwanted transmissions must be kept to very low levels if scientists are to make efficient use of these allocations.

People everywhere are fascinated by astronomy and SETI, and that fascination can be exploited to improve the public's science and technology literacy. At the SETI Institute we have developed exciting educational materials for grades 3 through 9 that build upon the natural curiosity of children about ET and life elsewhere in the universe to teach them about a very wide spectrum of scientific topics. The appeal and success of this approach would be diminished in a world where narrowly defined economic interest sacrificed the ability to observe the skies at radio frequencies.

Let me provide some examples of public interest: Our own membership organization, TeamSETI, has more than 3,500 members. The Planetary Society has more than 100,000 members. Our web site receives more than a million visitors per year. These people are not just curious about SETI, but are also willing to help support the research. More than 3.5 million people, in 226 countries, have downloaded the University of California, Berkeley's SETI@home screensaver, and routinely donate their spare CPU cycles to the search. This incredibly successful distributed computing experiment has made a significant economic contribution to our society by demonstrating the commercial potential for distributed computing problems that pique the public's interest.

All SETI projects in the U.S. are privately funded. Since 1993, the SETI Institute has operated the Phoenix observing program with an average annual budget of $4 million. When we are observing at the Arecibo Observatory in Puerto Rico, the world's largest radio telescope, we allow the public to "look over our shoulders" through a web camera. This web page has about 5,000 visitors per night. The observatory is also visited by more media during our observing sessions than during other times. By being willing to financially support this research themselves, people are attesting to it's economic value. Thus it seems clear that they certainly will support continued protection of allocated portions of the spectrum for this research.

The Institute, in partnership with the University of California Berkeley, is building an innovative telescope in northern California. The Allen Telescope Array (ATA) will consist of 350 six-meter antennas that when combined will form the equivalent of a single 100-meter dish. Using advanced computer technology, the ATA will be able to conduct several independent experiments simultaneously within an instantaneous bandwidth covering 0.5 GHz to 11.4 GHz. This wide bandwidth presents both opportunities and challenges. New strategies for SETI and new techniques for radio astronomy become possible with the wide bandwidth and multiple beams offered by the ATA. At the same time, new techniques that utilize the large number of antennas in the array must be developed to mitigate the effects of both terrestrial and satellite transmitters.

The ATA is a significant example of the economic value given to SETI and traditional radio astronomy. It is privately funded, an historical tradition for astronomy at optical

wavelengths, but a first for radio astronomy. Thanks to Paul Allen (co-founder of Microsoft) and Nathan Myhrvold (former Chief Technology Officer for Microsoft), the ATA is scheduled to begin operation as one of the world's largest fully-steerable telescopes in late 2005, and serve as a technology demonstrator for an international instrument 100 times as large that could be built in the next decade. When completed, the ATA will represent a private investment of more than $40 million. The ATA and all future radio telescopes will benefit from protection from transmitters in their "neighborhood". Such "quiet zones" and "coordination zones" now exist around a few observatories, and have proven an effective model for meeting the needs of both scientific research and service providers . These arrangements must be continued and supported by the FCC. They are, for radio astronomy, the equivalent of national parks and wildlife preserves.

We ask that you preserve the spectral bands now allocated for radio astronomy and passive remote sensing, continue support for existing radio quiet and coordination zones around radio observatories, and consider the creation of additional zones where merited in the future. Such a policy will maximize the return on investment in SETI and radio astronomy. It will also safeguard the real economic values of improved scientific literacy of the general public and improved scientific understanding of the universe.

Sincerely,

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